## Space Weather Forecast

Issued on Saturday, 23 October 2021 at 13:28 Local

**This forecast provides a four day assessment of space weather events. The probabilities stated below are for reaching or exceeding the given levels. For more information about space weather impacts please see the Met Office Space Weather Scales https://www.metoffice.gov.uk/weather/learn-about/space-weather/uk-scales**

**Space Weather Forecast Headline: Slight chance of Moderate class flares. Otherwise no significant activity expected.**

**Analysis of Space Weather Activity over past 24 hours**

**Solar Activity:** Solar activity was Very Low, with only minor background flares. A large and rather complex sunspot region, AR2887, has rotated onto the visible disk. A simple region, AR2886, in the southeast quadrant continues to approach the meridian. There are also two new small and simple unnumbered regions in the eastern disk. One in the north and one in the south. There were no Earth Directed coronal mass ejections visible in available imagery.

**Solar Wind / Geomagnetic Activity:** Solar wind speeds have been on a steady but erratic decline in the past 24 hours from near elevated to slow-ambient levels. The total Interplanetary Magnetic Field was weak, as was the important north-south component, which was mainly positive. Resultant geomagnetic activity was Quiet (Kp 0-2).

**Energetic Particles / Solar Radiation:** No solar radiation storms were observed.

**Four-Day Space Weather Forecast Summary**

**Solar Activity:** Solar activity is expected to be at Low or Very low levels, but with a slight chance of Moderate-class flares (20%). The elevated probabilities result from a large sunspot region close to the southeast limb and also a number of other groups expected to rotate onto the Earth-facing disc in the coming days.

**Solar Wind / Geomagnetic Activity:** The solar wind is expected to remain at slow-ambient or slightly elevated levels in the coming days. No new high speed streams are expected during the period. Geomagnetic activity is very likely to be Quiet through the next four days (Kp 0-2).

**Energetic Particles / Solar Radiation:** No solar radiation storms are expected.

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# Met Office Space Weather Forecast

**Geomagnetic Storms:**

| Geo-Magnetic Storm Probability (Exceedance) | Level | Past 24 Hours (Yes/No) | Day 1 (00-24 UTC) (%) | Day 2 (00-24 UTC) (%) | Day 3 (00-24 UTC) (%) | Day 4 (00-24 UTC) (%) |
|---|---|---|---|---|---|---|
| Minor or Moderate | G1 to G2 | No | 1 | 1 | 1 | 2 |
| Strong | G3 | No | 1 | 1 | 1 | 1 |
| Severe | G4 | No | 1 | 1 | 1 | 1 |
| Extreme | G5 | No | 1 | 1 | 1 | 1 |

**Radio Blackouts - X Ray Flares:**

| X Ray Flares Probability | Level | Past 24 Hours (Yes/No) | Day 1 (00-24 UTC) (%) | Day 2 (00-24 UTC) (%) | Day 3 (00-24 UTC) (%) | Day 4 (00-24 UTC) (%) |
|---|---|---|---|---|---|---|
| Active | R1-R2 M Class | No | 20 | 20 | 20 | 20 |
| Very Active | R3 to R5 X | No | 1 | 1 | 1 | 1 |

**Solar Radiation Storms - (High Energy Protons):**

| Radiation Storms Probability (Exceedance) | Level ($cm^{-2}$ $sr^{-1}$ $s^{-1}$) | Past 24 Hours (Yes/No) | Day 1 (00-24 UTC) (%) | Day 2 (00-24 UTC) (%) | Day 3 (00-24 UTC) (%) | Day 4 (00-24 UTC) (%) |
|---|---|---|---|---|---|---|
| Active | ≥ S1 | No | 1 | 1 | 1 | 1 |
| Very Active | ≥ S3 * | No | 1 | 1 | 1 | 1 |

* S3 ≥ 10 MeV ≥ 1000 pfu and / or ≥ 50 MeV ≥ 10 pfu. (pfu = $cm^{-2}sr^{-1}s^{-1}$)

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